Central Indiana Air Quality Advisory Group
Interim Statement of Findings

The Indiana Department of Environmental Management established the Central Indiana Air Quality Advisory Group (CIAQAG) in September 2003 to study alternatives for inclusion in the Central Indiana State Implementation Plan (attainment SIP) that will, following approval by the U.S. Environmental Protection Agency (USEPA), guide air pollution control efforts in Central Indiana. The CIAQAG met 18 times between September 2003 and November 2005, listened to numerous presentations on options for meeting air quality standards, and discussed the merits of a wide range of regulatory and voluntary alternatives. New control targets for local and/or regional reductions in specific pollutants have not yet been specified through photochemical modeling being conducted by the Lake Michigan Air Directors Consortium (Indiana, Illinois, Michigan, Wisconsin, and Ohio). Discussions focused on alternatives for control of local volatile organic compounds (VOCs) because of their importance in management of local ground-level ozone. To a much lesser extent, discussions also addressed the control of nitrogen oxide because of its role as a precursor to the formation of both ground-level ozone and fine particles (PM 2.5).

On January 14, 2005, members of the CIAQAG participated in a ranking exercise to establish preferences for regulatory alternatives within the local non-attainment area for meeting new air quality control objectives that are contingent on needs for different levels in reductions of VOCs. Since then, the CIAQAG considered three additional control measures and revisited these rankings. This statement summarizes the findings of the CIAQAG as of the November 2005 meeting. These interim findings will be updated as new information becomes available, modeling analyses are completed, and the committee completes its deliberations.

These interim findings also will be used to guide additional photochemical, air quality modeling. Air quality modeling is an important tool that provides useful estimates of the reductions in emissions required to achieve air quality standards, but modeling results are only one input into the decision-making process used by IDEM to compile the weight of evidence demonstration that will be included in the State Implementation Plan submitted to USEPA. As of November 2005, the modeling results indicate that Central Indiana will be close to attainment and compliance with standards by the assigned deadline. However, there is uncertainty associated with the modeling results, and additional modeling will be completed prior to submittal of the State Implementation Plan. The uncertainty associated with current results is on the order of magnitude of plus or minus three (3) ppb for ozone. Complex factors that contribute to uncertainty in modeling results include:

- The mobile source emissions inventory needs to be refined to better account for fleet and fuel mix, especially for future years.
- The stationary source emissions inventory does not accurately isolate where and when emission reductions from the CAIR rule will occur.
- The area must attain the ozone standard by the close of the 2008 season, but current modeling is for 2009.
- Future year projections may reflect a bias associated with inclusion of the 2002 and 2004 monitor values in the baseline design value for the area.

Future modeling runs may address some of these factors and produce new results that address current uncertainties and enable decision-makers to refine judgments about preferred control measures.

As of November 2005, the members of CIAQAG ratified these interim findings:

1. A variety of regulatory and voluntary control strategies are available to help achieve air pollution control objectives. IDEM and other CIAQAG stakeholders should pursue voluntary strategies to the maximum extent possible. However, the potential for voluntary strategies to achieve reductions is limited and there is uncertainty regarding their effectiveness. In general, for purposes of achieving specified reductions in VOCs, voluntary measures should be considered mainly as strategies that will help compensate for the margin of error associated

with the effectiveness regulatory control strategies. While the potential for reductions associated with voluntary strategies may be difficult to measure, CIAQAG members believe they are very important because they involve the public in achieving the goal of clean air and because they will improve quality of life for Central Indiana residents.

2. Adoption of additional regulatory control strategies for the local non-attainment area may be required to achieve pollution control objectives in addition to regional control strategies that have or will be adopted at the federal level, such as the Clean Air Interstate Rule (CAIR). The number of different strategies that will be required depends on the levels of reduction that may be required. Table 1 summarizes the levels of pollutant reductions in VOCs associated with different local control strategies. The strategies will have different costs and will affect different constituencies or stakeholders. Committee members took into consideration these different effects in their preference rankings.

3. The CIAQAG recommends that IDEM consider the following approach to implementation of regulatory control strategies in addition to voluntary measures:

    a. If a five percent reduction in VOCs is required, IDEM should consider some combination of four strategies: Lower Reid Vapor Pressure gasoline (LRVP), degreasing, portable fuel containers, and Stage 1 vapor recovery for Madison County.

    b. If a 10 percent reduction in VOCs is required, IDEM should consider some combination of four strategies: LRVP, degreasing, portable fuel containers, regulatory transportation control measures (TCMs), and Stage I vapor recovery for Madison County.

    c. If a 15 percent reduction in VOCs is required, IDEM should consider some the following six strategies: LRVP, degreasing, portable fuel containers, regulatory TCMs, ULSD non-road, and Stage 1 vapor recovery for Madison County. However, in combination, these measures likely will not achieve a 15 percent reduction in VOCs. IDEM then will have to consider either an inspection and maintenance (I&M) program or introduction of California-like reformulated gasoline (CRFG), each of which presents significant challenges. While some CIAQAG members believe an I&M program is warranted, others believe it is socially regressive, and all members grant that an I&M program may be very difficult to implement politically. With respect to CRFG, CIAQAG members recognize that it may be infeasible for refineries to produce and make CRFG available within the specified regulatory period. As a result, in order to comply, IDEM will have to consider tradeoffs between the implementation of a potentially unpopular I&M program, the feasibility of trying to accelerate implementation of CRFG, or some other alternative as yet unidentified.

    d. If a 20 percent or greater reduction in VOCs is required, IDEM will need to consider all available control strategies. If it is infeasible to implement measures such as CRFG within timeframes established in the SIP, the IDEM leadership will have to consider strategies for phasing in controls and negotiate attainment deadlines with USEPA.

Table 1. Selection of interim recommendations for ozone control measures.

Control measures	Working estimate of total annualized anthropogenic inventory of VOC	CIAQAG preferred control measures as of November 2005 discussion*			Control measures not selected
		5% reduction	10% reduction	15% reduction	
Regulatory Measures					
1. Enhanced or hybrid I&M	5.0%			Enhanced or hybrid I&M or California-like RFG	
2. California-like RFG	12.8%				
3. High-emitting vehicle inspection	1.0-2.0%		**	**	
4. LRVP	4.5-7%	LRVP	LRVP	LRVP	
5. ULSD non-Road (California Rule)	1.6%			ULSD non-road	
6. VOC RACT extended	0.2%			VOC RACT extended	
7. Degreasing	2.7%	Degreasing	Degreasing	Degreasing	
8. Auto refinishing	2.7%				Auto refinishing
9. Transportation control measures (TCMs)-regulatory	1-2.5%		Transportation control measures (TCMs)-regulatory	Transportation control measures (TCMs)-regulatory	
10. Portable gas containers	0.7%	Portable gas containers	Portable gas containers	Portable gas containers	
11. Gasoline distribution and dispensing facilities	0.1%***	Stage 1 vapor recovery for Madison County	Stage 1 vapor recovery for Madison County	Stage 1 vapor recovery for Madison County	Stage II vapor recovery and underground storage tank vents
12 Asphalt application	0-3.9%				Asphalt application
13. I&M and LRVP	7.9%				
14. I&M and California-like RFG	15.2%				
Voluntary Measures Compensating for Uncertainty					
15. Voluntary mobile measures	1-2.5%	Voluntary mobile measures	Voluntary mobile measures	Voluntary mobile measures	
16. Other voluntary measures	Up to 2.0%	Other voluntary measures	Other voluntary measures	Other voluntary measures	

*The CIAQAG concluded that all control measures would be needed if a 20% reduction in VOCs were required.
**While the CIAQAG has chosen not to recommend high-emitting vehicle inspection at this time due to logistical and financial limitations, it recognizes that some action needs to be taken to address the emissions from the dirtiest vehicles and that such a program could provide significant co-benefits for PM 2.5 reduction. CIAQAG reserves this control measure for further consideration as more information becomes available regarding required reductions for ozone and PM 2.5
***Reduction potential for gasoline distribution and dispensing facilities refers to the adoption of three regulatory rules. As such, the reduction potential for only Stage 1 vapor recovery for Madison County will yield less than 0.1%.